Illinois Environmental Protection Agency · P. O. Box 19276, Springfield, IL 62794-9276

217/782-3362

NPDES IL0021971
Springfield S.D. Sugar Creek STP -- Year-round Disinfection Exemption
Tentative Approval

May 1, 1989

Gerald Peters
Springfield Sanitary District
3017 North 8th Street, Rural Route #2
Springfield, Illinois 62707

Dear Mr. Peters:

The Agency has completed the review of your March 24, 1989 application for exemption from the effluent disinfection requirements of 35 Ill. Adm. Code 304.121 for the Springfield Sanitary District Sugar Creek STP. Based upon the information provided in your application and the review criteria of Title 35, Part 378, Effluent Disinfection Exemptions, your application has been tentatively approved for year-round exemption.

This tentative approval is based on the Agency's determination that the affected receiving water body, an unnamed tributary of Sugar Creek from the discharge to the confluence with Sugar Creek and thence to the confluence with the South Fork of the Sangamon River, is not a "protected water" for the purposes of 35 Ill. Adm. Code 302.209. The Agency will proceed with NPDES permit modification including the necessary public notice requirements prior to taking final action on your disinfection exemption application. All comments received during the notice period, including those related to unprotected status for the receiving water body, will be evaluated. Final exemption action will coincide with permit modification. The permit must be modified to reflect this exemption before the disinfection process can be discontinued. This tentative approval applies only to Outfall #008. Any bacterial limits and disinfection requirements of Section 306.305 (excess flow treatment requirements) are unaffected by this exemption and will remain applicable.

At the time of permit modification consideration will be given to inclusion of a discharge limitation for total residual chlorine. If after issuance of an exemption, continued chlorination is anticipated for O&M purposes, an appropriate residual chlorine limit will be established to avoid instream chlorine toxicity.

Additionally, the Agency has determined that this exemption will not result in exceedance of the 2000/100 ml fecal coliform standard at any down-stream public or food processing water supply intake. If circumstances change, resulting in an inability to maintain the 2000/100 ml standard at the point of such an intake, this exemption will be subject to reconsideration.

If you have any questions or comments, please contact Bob Mosher at the above address and phone number.

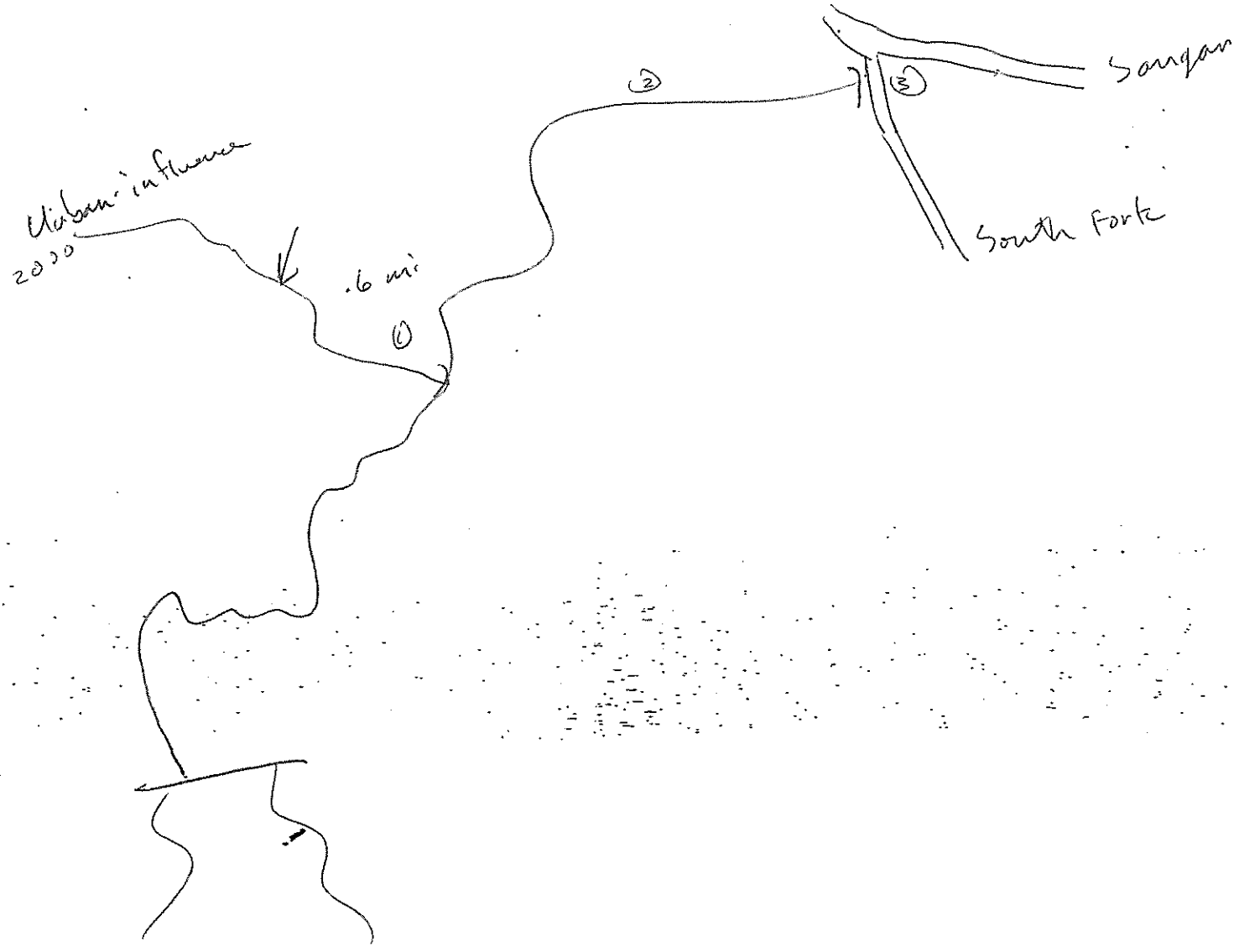
Sincerely,

Toby D. Frevert, Manager
Planning Section
Division of Water Pollution Control

TDF:RGM:rlc/1601k,46-47

cc: Phil Dawson, Records Unit
Planning Section Files✓
FOS, Region 5
MPC, CAS
Charles Muchmore
Central Monitoring Unit
Margaret McHarry, Grants

1. Rock River
2. Galena River
3. Fox River
4. Mackinaw River
5. Henderson Creek
6. Spoon River
7. LaMoine River
8. Sny River
9. Sangamon River
10. Statewide (& Ill. River)
11. Des Plaines River
12. Kankakee River
13. Vermillion River (Ill.)
14. Kaskaskia River
15. Vermillion River (Wabash)
16. Embarass River
17. Little Wabash River
18. Big Muddy River
19. Big Bay Creek



50.00% LOW FLOW RECURRENCE
SUMMER

NUMBER OF SEGMENTS IN MODEL = 3
K VALUES ARE DEFAULT

DISCHARGES WERE DETERMINED ISWS EQUATIONS
RIVER BASIN IS SANAGAMON RIVER
DISCHARGE CONSTANT 1 = .650
DISCHARGE CONSTANT 2 = -4.930
DISCHARGE CONSTANT 3 = 1.030
VELOCITIES WERE DETERMINED ISWS EQUATIONS
VELOCITY CONSTANT 1 = -1.010
VELOCITY CONSTANT 2 = -.950
VELOCITY CONSTANT 3 = .250

********** SEGMENT NUMBER 1 **********

******** DATA INPUT ********
K = .060 /HOURS
SEGMENT LENGTH = .600 MILES
EFFLUENT FECAL COUNT = 2326. COLIFORMS/100 ml
FACILITY DAF = 15.470 cfs
DILUTION FECAL COUNT = 8000. COLIFORMS/100 ml
DILUTION DRAINAGE AREA = 1.50 SQ MI
SEGMENT END DRAINAGE AREA = 2.00 SQ MI

********DATA OUTPUT ********
DILUTION WATER DISCHARGE = .25 cfs
SEGMENT END DISCHARGE IS SUM OF TRIBUTARY FLOWS
CALCULATED SEGMENT END DISCHARGE = .33 cfs
SEGMENT END DISCHARGE = 15.75 cfs
DILUTION RATIO = .02:1
SEGMENT END VELOCITY = .27 fps
RETENTION TIME = 3.24 HOURS
********** FECAL COUNT AT SEGMENT END = 1910. COLIFORMS/100 ml. **********

********** SEGMENT NUMBER 2 **********

******** DATA INPUT ********
K = .060 /HOURS
SEGMENT LENGTH = 4.100 MILES
DILUTION FECAL COUNT = 100. COLIFORMS/100 ml
DILUTION DRAINAGE AREA = 268.00 SQ MI
SEGMENT END DRAINAGE AREA = 283.00 SQ MI

******** DATA OUTPUT ********
DILUTION WATER DISCHARGE = 51.61 cfs
SEGMENT END DISCHARGE IS SUM OF TRIBUTARY FLOWS
CALCULATED SEGMENT END DISCHARGE = 64.39 cfs
SEGMENT END DISCHARGE = 67.33 cfs
DILUTION RATIO = 3.28:1
SEGMENT END VELOCITY = .98 fps
RETENTION TIME = 6.16 HOURS
********** FECAL COUNT AT SEGMENT END = 368. COLIFORMS/100 ml **********

********** SEGMENT NUMBER 3 **********

******** DATA INPUT ********
K = .060 /HOURS
SEGMENT LENGTH = .010 MILES
DILUTION FECAL COUNT = 100. COLIFORMS/100 ml
DILUTION DRAINAGE AREA = 885.00 SQ MI
SEGMENT END DRAINAGE AREA = 1168.00 SQ MI

******** DATA OUTPUT ********
DILUTION WATER DISCHARGE = 176.65 cfs
SEGMENT END DISCHARGE IS SUM OF TRIBUTARY FLOWS
CALCULATED SEGMENT END DISCHARGE = 835.06 cfs
SEGMENT END DISCHARGE = 843.97 cfs
DILUTION RATIO = 5.68:1
SEGMENT END VELOCITY = 1.42 fps
RETENTION TIME = .01 HOURS
********** FECAL COUNT AT SEGMENT END = 173. COLIFORMS/100 ml **********

Disinfection Exemption Modeling Seasonal or Year Round

Date 4-28-89 Type of facility Municipal

Facility Name Springfield Sugar Creek Outfall # 008

# of Segments in Model 3

Recurrence frequency .5

Are K values default, Y or N Y

Discharges determined by 1

1. ISWS Equations
2. USGS Gauging Stations
3. Other Methods

Velocities determined by 1

Facility, DAF (cfs) 15.47

Facility undisinfected fecal count 2326

Selection number for basin eqtns. 9

Season, Winter or Summer S

	SEGMENT #					
	1	2	3	4	5	6
Length, River miles	0.6	4.1	0.1			
Background fecal conc.	2000	100	100			
Dilution water drainage area	1.5	268	885			
Drainage area @ segment end	2.0	283	1168			
Point source in next segment	no	no	no			
Point source fecal conc.						
Point source, DAF (cfs)						
Segment end fecal conc.						

Nearest downstream potential for recreational use South Fork

Does this stream flow through residential area or park?

Any downstream intake for public water supply? no

Topographic Quad Maps Springfield East 158D

Comments: